International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

A Case Control Study to Assess the Risk Factors for Preterm Deliveries Among the Mothers Admitted in Shri Vinoba Bhave Civil Hospital, Silvassa, Dadra and Nagar Haveli

Amee Tandel[1], Khushbu Patel[2]

[1]Masters in Nursing, OBG Nursing Student, Shri Vinoba Bhave College of Nursing, Silvassa
[2]Assistant Professor, Shri Vinoba Bhave College of Nursing, Silvassa

ABSTRACT

BACKGROUND: According to WHO Preterm delivery is defined as a delivery that occurs before 37 weeks of gestation. "Born too Soon" decade of action on preterm birth, produced by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) together with PMNCH-the world's largest alliance for Women, Children, and adolescents sounds the alarm on a "Silent emergency" of preterm birth, long under recognized in its scale and severity which is impeding progress in improving children's health and survival.

OBJECTIVE: This study aim to determine the risk factors associate with preterm deliveries among the Mothers admitted in Shri Vinoba Bhave Civil Hospital, Silvassa, Dadra and Nagar Haveli.

METHODS: The research design adopted for study was Case- control study. The written permission was obtained from the concerned authority of Shri Vinoba Bhave Civil Hospital, Silvassa for conducting the study. During the data collection period, the investigator established a good rapport with Mothers who had participated in the study and taken written consent from each of them. Samples were assigned using consecutive sampling technique. As per the research design & tool, demographic & maternal related data was collected. After collecting data from 200 samples for control group and 50 samples for case group were analysed using descriptive and inferential statistics.

RESULT: A family history of PTD (OR:2.1, p value: 0.001, CI: 0.897-6.610), Height (OR: 1.672, p Value: 0.002, CI: 0.127-21.990), weight gain during pregnancy (OR: 13.070, p value: 0.024, CI: 1.413-120.851), , number of health visited during pregnancy (OR:8.411, p value: 0.001, CI:2.485-28.469), danger sign during pregnancy (OR: 2.01, p value: 0.001, CI:0.080-2.375), hypertension (OR:2.41, p value<0.0001, CI: 0.045-8.348), oligohydramnions (OR: 1.652, p value: 0.004, CI: 0.544-5.817)and PROM (OR: 2.319, p value=0.012, CI:0.012-1.280) were all significant associated with PTD.

CONCLUSION: The present study assessed the risk factors for preterm deliveries among the mothers admitted at Shri Vinoba Bhave Civil Hospital, Silvassa, DNH. In this study, a family history of preterm birth, weight gain during pregnancy, danger sign during pregnancy, hypertension, oligohydramnions and PROM. Recognizing the most common risk factors for PTD will help to increase the awareness about high-risk pregnancy, improve the preventive measures of preterm risk factors and modify preterm care protocol.

KEY WORDS: Risk factor, Preterm Delivery, Mothers, case group, control group

INTRODUCTION:

Despite tremendous advances in perinatal medicine and the establishment of fetomaternal units, preterm birth remains the leading cause of perinatal mortality and neonatal morbidity representing one of the major targets of obstetrics health care. "Born too Soon" decade of action on preterm birth, produced by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) together with PMNCH-the world's largest alliance for Women, Children, and adolescents sounds the alarm on a "Silent emergency" of preterm birth, long under recognized in its scale and severity which is impeding progress in improving children's health and survival. Every year, an estimated 15 million newborns are born preterm (before 37 completed weeks of gestation). Worldwide, 1 in 10 babies is born preterm (< 37 weeks gestation), that's an estimated one baby every two seconds. Rates of preterm birth have barely changed during the past decade, and in some rates are rising. World Prematurity Day is observed on 17th November each year to raise awareness of the challenges and burden of pre-term birth globally. It represents a key moment to focus global attention on the leading cause of death in children under 5 years of age, complications from preterm birth, and the impact preterm birth has on individuals, families and society.

NEED OF THE STUDY:

Preterm Deliveries is the main leading cause of most neonatal deaths. The past decade has seen no measurable change in global preterm birth rates, including in the highest-burden regions. A few countries have reduced their preterm birth rates, but only marginally (0.5% per year). More encouragingly, the availability of preterm birth data has increased in all regions. There is also variation at national level. According to global estimates, Bangladesh has the highest preterm birth rate (16.2%), followed by Malawi (14.5%), Pakistan (14.4%), India (13%) and South Africa (13%). Although the highest rates are predominantly in low and middle income contexts. Almost half of the preterm births in 2020 occurred in just five countries: India, Pakistan, Nigeria, China and Ethiopia. With less than seven years to realize the SDGs, rates of progress are slower than a decade ago and in some cases are even reversing. India had the highest number of preterm births in 2020. In India, total preterm birth rate was 13%. In recent years, India has significantly reduced under five mortality. However it still has a high child mortality rate compared to other mortality. The "four's Cs" Conflict, Climate change , COVID-19, and the cost of living crisis-pose distinct but overlapping challenges, and compound existing inequalities, especially in places where health systems are already week. Defining risk factors for prediction of pre term birth is a reasonable goal for several reasons. First, identification of at risk women allows initiation of risk-specific treatment. Second, the risk factors might define a population useful for studying specific interventions. Finally, identification of risk factors might provide important insights into mechanism leading to preterm birth.

OBJECTIVES OF THE STUDY:

To determine the risk factors associate with preterm deliveries among the Mothers.

HYPOTHESES:

The hypotheses of the study is tested at <0.05 level of significance.

1. **Null Hypothesis (H0):** There is no association between the socio-demographic and maternal variables with Preterm deliveries.
2. **Research Hypothesis (H1):** There is significant association between socio-demographic and maternal variables with Preterm deliveries.

ASSUMPTIONS:

1. Mothers' exposure to risk factors may lead to preterm birth.
2. Demographic Variables may influence preterm birth among the Mothers.

RESEARCH DESIGN/METHOD:

The research design used in the present study for assessing the risk factors for preterm deliveries among the mothers at Shri Vinoba Bhave civil hospital, silvassa, DNH was case control (analytic) observational study design as the data from the mothers were collected from past through case records and structured interview method. After that assess the risk factors for preterm deliveries. In the present study, the samples were divided into two groups, case group and control group. For every case records 4 control group records were obtained. The control group were type of delivery matched. Case Group comprised of 50 samples. Control Group comprised of 200 samples. Consecutive sampling technique was used in present study.

VARIABLES:

Inclusion Criteria:

For case group:

- All Primi mothers who are delivered alive pre-term babies (under 37 weeks) gestational age in the Shri Vinoba Bhave Civil Hospital, Silvassa and DNH were included for this study.
- All mothers who speak in Hindi, Gujarati, and English.
- All Primi mothers who are local residence of DNH.

For control Group:

- All Primi mothers who are delivered alive term babies (between 37 to 42 weeks) gestational age in the Shri Vinoba Bhave Civil Hospital, Silvassa and DNH were included for this study.
- All the mothers who speaks in Hindi, Gujarati, and English.
- All Primi mothers who are local residence of DNH.

Exclusion Criteria:

- The Mothers of the newborn babies who did not provide consent were excluded.
- Incomplete files without phone numbers and contact information, unknown pregnancy age, incomplete medical records.
- Those mothers with unknown LMP or absent in registration and investigation.
- The mother who having a twin pregnancy, IUFD.

DATA COLLECTION TOOLS AND TECHNIQUE:

STRUCTURED INTERVIEW METHOD AND CASE RECORDS

The tool consists of three sections:

Section A: Demographic Performa

Section B: Bio physiological Profile

1. Mother related
2. Neonate related

Section C: Maternal Variables

1. Maternal antenatal care utilization
2. Maternal Medical Variables
3. Maternal Obstetrics Variables
4. Lifestyle, behaviour and IPV related variables

DATA COLLECTION PROCEDURES:

Data collection for main study was started from 16th October 2023 to 25th November 2023 at Shri Vinoba Bhave Civil Hospital, Silvassa, DNH. The written permission was obtained from the concerned authority of Shri Vinoba Bhave Civil Hospital, Silvassa, as well from the Ethical Committee, Shri Vinoba Bhave Civil Hospital, Silvassa for conducting the study. During data collection period, the investigator established a good rapport with Mothers who had participated in the study and taken written consent from each of them. Samples were assigned using consecutive sampling technique. As per the research design & tool, demographic& clinical data was collected. The gestational age was assessed by using date of last menstrual periods and confirmed by ultrasound in record. Data for the same was obtained from labour room records and detailed regarding the probable risk factors of the participants who had a preterm delivery such as maternal age, history of abortion, history of preterm birth, history of other medical conditions, location of placenta etc were abstracted from the records with the aid of the pre-designed checklist. Fetal presentation, fetal birth weight and other co morbidities of the fetus were also collected for the records. The data were collected from both groups. After collecting data from 200 control group and 50 case group samples, the data was analysed using descriptive and inferential statistics.

ANALYSIS AND FINDINGS:

The collected data was analysed according to the plan for data analysis which includes both descriptive and inferential statistics. The data findings have been tabulated and organized according to the plan of data analysis and presented under the following section.

SECTION 4.1: Frequency and percentage distribution of Mothers depending on the Demographic Variables among Case Group and Control Group.

SECTION 4.2: Frequency and percentage distribution of Mothers depending on the Biophysiological profile among Case group and Control Group.

SECTION 4.3: Frequency and percentage distribution of Mothers depending on the maternal variables among Case Group and Control Group.

SECTION 4.4: Association between Case Group and Control Group with Selected Demographic Variables.

SECTION 4.5: Association between Case Group and Control Group with Selected Biophysiological Profile.

SECTION 4.6: Association between Case Group and Control Group with Selected Maternal Variables.

SECTION 4.7: Logistic regression of risk factors related to PTB.

SECTION 4.1

FREQUENCY AND PERCENTAGE DISTRIBUTION OF MOTHERS DEPENDING ON THE DEMOGRAPHIC VARIABLES AMONG CASE GROUP AND CONTROL GROUP.

SR NO	DEMOGRAPHIC VARIABLES		CASE GROUP (n= 50)		CONTROL GROUP (n=200)	
			Frequency	Percentage	Frequency	Percentage
1.	Maternal age (in years)	Below 21	12	24%	24	19.5%
		21 to 30 year	33	66%	66	72%
		31 to 40 year	05	10%	10	8.5%
		Above 40 year	00	00%	00	00%
			Total: 50		Total:200	
2.	Education of the mother	Professional degree	00	00%	00	00%
		Graduate	02	04%	20	10%
		Intermediate/ diploma	03	06%	20	10%
		High school	03	06%	21	10.5%
		Middle school	19	38%	68	34%
		Primary school	19	38%	61	30.5%
		No formal education	04	08%	10	5%
			Total: 50		Total:200	
3.	Education of the father	Professional degree	00	00%	00	00%
		Graduate	02	04%	17	8.5%
		Intermediate/ diploma	03	06%	32	16%
		High school	14	28%	32	16%

		Middle school	12	24%	44	22%
		Primary school	09	18%	55	27.5%
		No formal education	10	20%	20	10%
			Total: 50		Total:200	
4.	**Occupation of the father**	Professional	01	02%	10	05%
		Semi professional	00	00%	06	03%
		Clerical/ shop/ farm	01	02%	27	13.5%
		Skilled worker	03	06%	20	10%
		Semi skilled worker	19	38%	66	33%
		Unskilled worker	21	42%	61	30.5%
		Home maker	05	10%	10	05%
			Total:50		Total:200	
5.	**Occupation of the mother**	Professional	02	04%	06	3%
		Semi professional	00	00%	01	0.5%
		Clerical/ shop/ farm	02	04%	12	06%
		Skilled worker	00	00%	02	01%
		Semi skilled worker	00	00%	03	1.5%
		Unskilled worker	15	30%	53	26.5%
		Home maker	31	62%	123	61.5%
			Total :50		Total:200	
	To	Rs 47348 & above	00	00%	00	00%

6.						
		Rs 23674- 47347	01	02%	12	06%
		Rs 17756- 23673	02	04%	27	13.5%
		Rs 11837- 17755	21	42%	64	32%
		Rs 7102 -11836	20	40%	76	38%
		Rs 2391-7101	06	12%	20	10%
		Less than 2390	00	00%	01	0.5%
			Total:50		Total:200	
7.	**Religion**	Hindu	32	64%	137	68.5%
		Muslim	00	00%	00	00%
		Christian	18	36%	63	00%
		If any other…	00	00%	00	31.5%
			Total:50		Total:20	
8.	**Family history of pre term**	Yes	23	46%	32	16%
		No	27	54%	168	84%
			Total :50		Total:200	
9.	**Family history of other disease**	Yes	16	32%	40	20%
		Sickle cell disease Diabetes HTN Cataract	05 03 06 02	10% 6% 12% 4%	10 08 15 07	5% 4% 7.5% 3.5%
		No	34	68%	160	80%
			Total :50		Total:200	
	M	Married	35	70%	159	79.5%

10.						
		Unmarried	07	14%	14	07%
		Divorced & separated	00	00%	00	00%
		Widowed	00	00%	00	00%
		Living together	08	16%	27	13.5%
			Total :50		Total:200	
11.	**Type of family**	Joint family	36	72%	130	65%
		Nuclear family	08	16%	22	11%
		Extended family	06	12%	48	24%
			Total :50		Total:200	
12.	**Place of residence**	Urban	05	10%	77	38.5%
		Rural	45	90%	123	61.5%
			Total :50		Total:200	
13.	**Source of information regarding antenatal care**	Health worker	33	66%	107	53.5%
		Neighbour	02	04%	10	05%
		Family member	14	28%	73	36.5%
		Social media	01	02%	10	05%
			Total :50		Total:200	

SECTION: 4.2

FREQUENCY AND PERCENTAGE DISTRIBUTION OF MOTHERS DEPENDING ON THE BIOPHYSIOLOGICAL PROFILE AMONG CASE GROUP AND CONTROL GROUP MATERNAL RELATED

SR NO	BIOPHYSIOLOGICAL PROFILE		CASE GROUP (n=50)		CONTROL GROUP (n=200)	
			Frequency	Percentage	Frequency	Percentage
1	Gestational age at the time of delivery	37 TO 42 Week	00	00%	200	100%
		32 to 36+6 week	43	86%	00	00%
		28 to 31+6 weeks	06	12%	00	00%
		<28 weeks	01	02%	00	00%
2	Prepregnancy weight of the mother	30-40 kg	22	44%	50	25%
		40-50 kg	24	48%	68	34%
		50-60 kg	03	06%	51	25.5%
		60-70 kg	00	00%	28	14%
		>70 kg	01	02%	03	1.5%
3	Height	< 150 cm	23	46%	32	16%
		≥ 150 cm	27	54%	168	84%
4	Body Mass Index	<18.5 (underweight)	33	66%	71	35.5%
		18.5 to 24.9 (Healthy)	15	30%	99	49.5%
		25- 29.9 (Overweight)	01	02%	27	13.5%

		> 30 obese	01	02%	03	1.5%
5	Weight gain during	<10 kg	42	84%	80	40%
		10-12 kg	07	14%	80	40%
		>12 kg	01	02%	40	20%
6	Prepregnancy BP of mother	Normal Blood pressure	50	100%	199	99.5%
		Elevated Blood pressure	00	00%	01	0.5%
7	At birth BP of mother	Normal Blood pressure	37	74%	172	86%
		Elevated Blood pressure	13	22%	28	14%
8	Current Sero status of mother	HIV	00	00%	00	00%
		HBsAg	00	00%	03	1.5%
		Triple marker test	00	00%	00	00%
9	current Hemoglobin	≥11 g/dl	14	28%	87	43.5%
		10-10.9 g/dl	15	30%	72	36%
		7-9.9 g/dl	19	38%	40	20%

		≤7g/dl	02	04%	01	0.5%
NEONATE RELATED						
10	**Weight of the neonate**	2500 -4000 gm	09	18%	114	57%
		≤2500 gm	28	56%	82	41%
		≤1500 gm	10	20%	03	1.5%
		≤1000 gm	03	06%	01	0.5%
		≤750 gm	00	00%	00	00%
11	**Gender of the**	Female	20	40%	109	54.5%
		Male	30	60%	91	45.5%
12	**HC of the neonate**	>33 cm	00	00%	08	04%
		33 to 31 cm	12	24%	139	69.5%
		30 to 28 cm	35	70%	52	26%
		<28 cm	03	06%	01	0.5%
13	**APGAR score at 1 min**	7 to 10	15	30%	159	79.5%
		4 to 6	35	70%	41	20.5%
		0 to 3	00	00%	00	00%
14	**APGAR score at 5 min**	7 to 10	34	68%	198	99%
		4 to 6	16	32%	02	01%
		0 to 3	00	00%	00	00%

15	**Third trimester HSG**	Reactive	26	52%	170	85%
		Non reactive	24	48%	30	15%

SECTION: 4.3
MATERNAL VARIABLES
PART: 4.3.1
FREQUENCY AND PERCENTAGE DISTRIBUTION OF MOTHERS DEPENDING ON MATERNAL CARE UTILIZATION AMONG THE CASE GROUP AND CONTROL GROUP

SR NO	MATERNAL ANTENATAL CARE UTILIZATION		CASE GROUP (n=50)		CONTROL GROUP (n=200)	
			Frequency	Percentage	Frequency	Percentage
1	**Number of visited health facility**	1 to 2	20	40%	09	4.5%
		3 to 4	12	24%	36	18%
		More than 4 times	18	36%	155	77.5%
2	**Place where attended antenatal clinic**	Health center	35	70%	90	45%
		Government Hospital	14	28%	98	49%
		Private Hospital	01	02%	11	5.5%
		Private clinic	01	02%	01	0.5%
3	**Maternal urine analysis**	Yes	31	62%	161	80.5%
		No	19	38%	39	19.5%
4	**Tetanus toxoid vaccine**	Yes	45	90%	187	93.5%
		No	05	10%	13	6.50%
5	**Checked blo**	Yes	49	98%	195	97.5%

		No	01	02%	05	2.5%
6	Iron & folic acid supplements	Yes	44	88%	193	96.5 %
		Regular	20	40%	146	73%
		Irregular	24	48%	47	23.5%
		No	06	12%	07	3.5%
7	When did you start IFA tablets?	None	06	12%	07	3.50%
		First trimester	30	60%	152	76%
		Second trimester	14	28%	41	20.5%
		Third trimester	00	00%	00	00%
8	Danger signs or symptoms during	Yes	29	58%	59	29.5%
		No	21	42%	141	70.5%
9	History of previous abortion	Yes	00	00%	00	00%
		No	05	100%	20	100%
10	Antihelmintic treatment	Yes	17	34%	163	81.5%
		No	33	66%	37	18.5%

PART: 4.3.2

FREQUENCY AND PERCENTAGE DISTRIBUTION OF MOTHERS DEPENDING ON THEIR MATERNAL MEDICAL VARIABLES AMONG THE CASE GROUP AND CONTROL GROUP

SR NO	MATERNAL MEDICAL VARIABLES		CASE GROUP (n=05)		CONTROL GROUP (n=20)	
			Frequency	Percentage	Frequency	Percentage
	P	Yes	46	92%	115	65%

		No	04	08%	85	35%
		If yes, Specify				
		Diabetes mellitus	00	00%	00	00%
		Hypertension	02	04%	01	0.5%
		Urinary Tract Infection	02	4%	00	0.5%
1		Asthma or Bronchitis	02	4%	00%	00%
		Thyroid disorders	01	2%	06	03%
		Cardiac disease	00	00%	00	00%
		Sexually transmitted infections	00	00%	00	00%
		Presence of anemia				
		No	14	26%	106	65%
		Yes If yes specify…	36	84%	94	35%
		1. Mild anemia	07	16.33%	61	22.71%
		2. Moderate anemia	24	56%	33	12.28%
		3. Severe Anemia	05	11.66%	00	00%
		4. Very Severe Anemia	00	00%	00	00%
		Maternal infections	05	10%	06	03%
		Malaria	3	06%	03	1.5%
		Dengue	00	00%	00	00%
		History of COVID 19	00	00%	00%	00%
		Sickle cell disease	05	10%	10	05%

		Typhoid fever	01	02%	00	00%
		If other specify….	02	04%	05	2.5%
		Viral fever Thrombocytopenia AGE	00 01 01	00% 20% 00%	02 02 01	10% 5% 5%

PART: 4.3.3

FREQUENCY AND PERCENTAGE DISTRIBUTION OF MOTHERS DEPENDING ON THEIR MATERNAL OBSTETRICAL VARIABLES AMONG THE CASE GROUP AND CONTROL GROUP

SR NO	MATERNAL OBSTETRIC VARIABLES		CASE GROUP (n=05)		CONTROL GROUP (n=20)	
			Frequency	Percentage	Frequency	Percentage
1	Types of presentation	Cephalic	49	98%	197	98.5%
		Breech	01	02%	03	1.5%
		Other (specify)	00	00%	00	00%
2	Occurrence of obstetrical complication	Yes	38	80%	93	45%
		No	12	20%	107	53.5%
		If yes, Specify….				
		Ante Partum Hemorrahge	02	04%	00	17%
		-Placenta Previa			00	02%
		-Abruptio Placenta	01	02%	00	00%
		Polyhydramnions	00	00%	02	01%
		Oligohydramnions	09	12%	14	3.5%
		Obstructed Labor	00	00%	06	10%

		Pregnancy induced hypertension	07	14%	30	05%
		Pre eclampsia	02	04%	00	00%
		Gestational Diabetes Mellitus	00	00%	00	0.5%
		Maternal RH factors	00	00%	00	00%
		Cervical Incompetence	00	00%	00	00%
		Uterine anomalies	00	00%	02	00%
		Premature rupture of membrane	18	20%	22	15%
		Cephalopelvic disproportion	00	00%	14	10%
		Filed induction	00	00%	00	00%
		Fetal distress	02	20%	09	10%
		Hyperemesis gravidrum	00	00%	00	00%
		HELLP syndrome	00	00%	00	00%
		Other (specify) Non reactive NST	00	00%	18 00	05%
3.	**Type of delivery**	Spontaneous Vaginal Delivery	36	72%	149	74.5%
		Assisted Vaginal Delivery	00	00%	00	00 %
		Induced Vaginal Delivery	00	00%	00	00%
		Elective Cesarean	00	00%	01	0.5%

		Section				
		Emergency Cesarean Section	14	28%	50	25%
4.	Placental	Anterior	18	36%	111	55.5%
		Posterior	32	64%	89	44.5%

PART: 4.3.4

FREQUENCY AND PERCENTAGE DISTRIBUTION OF MOTHERS DEPENDING ON THEIR LIFE STYLE, BEHAVIOUR AND INTIMATE PARTNER VIOLENCE VARIABLES AMONG THE CASE GROUP AND CONTROL GROUP

SR NO	MATERNAL ANTENATAL CARE UTILIZATION		CASE GROUP (n=05)		CONTROL GROUP (n=20)	
			Frequency	Percentage	Frequency	Percentage
1	Stressful events	Yes	22	44%	41	20.5%
		No	28	56%	159	79.5%
2	Bad habits	Yes	05	10%	05	2.5%
		No	45	90%	195	97.5%
	If yes,					
		Smoking	01		00	
		Drinking Alcohol	01		00	
		Tobacco Chewing	03		00	
3	Physical violence	**Yes**	00	00%	00	00%
		No	50	100%	200	100%
4	Psychological violence	**Yes**	05	10%	02	01%
		No	45	90%	198	99%
5	Rest during a day	**< 2 hours**	37	74%	39	19.5%
		2 to 4 hours	10	20%	131	65.5%
		>4 hours	03	06%	30	15%

6	Number of meals per day	< 4 times	39	78%	91	45.5%
		4 to 6 times	09	18%	89	44.5%
		>6 times	02	04%	20	10%

ASSOCIATION AND COMPARISON BETWEEN CASE GROUP AND CONTROL GROUP WITH SELECTED DEMOGRAPHIC VARIABLES

SR NO	DEMOGRAPHIC VARIABLES	CASE GROUP		CONTROL GROUP		CHI-SQUARE TEST	P-VALUE	INFERENCE	OR	95% CI
1	**Maternal Age in Years**									
	Below 21 years	12	24%	39	19.50%	0.703	p= 0.704	NS	NA	NA
	21-30 years	33	66%	144	72%					
	31-40 years	5	10%	17	8.50%					
	Above 40 years	0	0	0	0					
2	**Education of mother**									
	Educated	46	96%	190	95%	0.681	p= 0.4092	NS	1.65	(0.496 , 5.540)
	Non- Educated	4	4%	10	5%					
3	**Education of father**									
	Educated	48	98%	180	90%	0.442	p=0.5061	NS	2.66	(0.6-11.81)
	Non- Educated	2	2%	20	10%					
4	**Occupation of the father**									
	Worker	45	90%	190	95%	1.773	p= 0.1830	NS	0.473	(0.668 - 6.481)
	Non- Worker	5	10%	10	10%					

5	**Occupation of the mother**									
	Worker	19	38%	77	38.50%	0.0042	p= 0.9481	NS	0.974	(0.517 - 6.481)
	Non- Worker	31	62%	123	61.50%					
6	**Total Capita family income per month**									
	Rs 47348& above	0	0	0	0	5.965	p= 0.310	NS	NA	NA
	Rs 23674 - 47347	1	2%	12	6%					
	Rs 17756-17755	2	4%	27	13.50%					
	Rs 11837-11836	21	42%	64	32%					
	Rs 7102-11836	20	40%	76	38%					
	Rs 2391-7101	6	12%	20	10%					
	less than 2390	0	0%	1	0.50%					
7	**Religion**									
	Hindu	32	64%	137	68.50%	0.504	p= 0.478	NS	NA	NA
	Muslim	0	0	0	0					
	Christian	18	36%	63	31.50%					
	If other	0	0	0	0					
8	**Family History of Preterm Birth**									
	Yes	23	46%	32	16%	20.979	p< 0.0001	S	4.47	(0.09-0.37)
	No	27	54%	16	84%					
9	**Family History of Other disease**									
	Yes	16	32%	40	20%	0	1	NS	1.88	(0.26-1.05)
	No	34	68%	160	80%					
10	**Marital**									

	Status									
	Married	35	70%	159	79.50%					
	Unmarried	7	0	14	7%					
	Separated/ divorced	0	0	0	0					
	Widowed	0	0	0	0					
	Living Together	8	16%	21	13.50%	0	1	NS	NA	-
11	**Types of family**									
	Joint family	36	72%	130	65%					
	Nuclear family	8	16%	22	11%					
	Extended family	6	12%	48	24%	0.504	P=0.478	NS	NA	NA
12	**Place of residence**									
	Urban	5	10%	77	38.50%		p<			(2.14-
	Rural	45	90%	123	61.50%	14.74	0.001	S	5.63	14.82)
13	**Source of information regarding antenatal care**									
	Health care	33	66%	107	53.50%					
	Family member	2	4%	10	5%	2.848	p=0.416	NS	NA	NA
	Neighbor	14	14%	73	36.50%					
	Social media	1	1%	10	5%					

This table shows that Education of mother, Education of father, Occupation of mother, Occupation of father, total capita family income per month, religion, family history of other disease, marital status, types of family and source of antenatal care regarding information does not have any association between Case Group and control Group. Other significant data such as Family history of preterm Birth and Place of residence does have significant association between Case Group and Control Group. Hence stated hypothesis there will be association between the socio-demographic and maternal variables with pre-term delivery was accepted at 0.05 level of significance.

In Univariate analysis,

A mother's with Family History of preterm birth (OR: 4.47, CI: 0.09-0.37, P< 0.0001) were 4 times more chance to give preterm birth than those who had no family history of preterm birth.

A mothers who residing in rural area (OR: 5.63, CI: 2.14-14.82, p<0.001) were 5 times more chance to give preterm birth than those who residing in Urban area.

SECTION: 4.5

ASSOCIATION AND COMPARISON BETWEEN CASE GROUP AND CONTROL GROUP WITH SELECTED BIOPHYSIOLOGICAL PROFILE

MATERNAL RELATED

Biophysiological Profile	Case Group		Control Group		Chi-Square Test	P-Value	Inference	OR	95% CI
1. Gestational age at time of delivery									
37 to 42 weeks	0	0%	200	100 %	250.0	P<0.001	S	NA	NA
32 to 36+ 6 weeks	43	86%	0	0					
28 to 31+6 weeks	6	12%	0	0					
<28 weeks	1	2%	0	0					
2. Pre pregnancy weight of the mother									
30-40.9 kg	22	44%	50	25%	21.25	P<0.001	S	NA	NA
41-50.9 kg	24	48%	68	24%					
51-60.9 kg	3	3%	51	25.5 %					
61-70.9 kg	0	0	28	14%					
≥71 kg	1	1	3	1.5%					
3. Height									
<150 cm	23	46%	32	16%	20.979	<0.0000 1	S	4.47	(1.96-8.78)
≥150 cm	27	54%	168	84%					
4. Body Mass Index									
<18.5 (underweight)	33	66%	71	35.5 %	15.31	P=0.0	S	3.52	
18.5 to 24.9	15	30%	99	49.5					

(Healthy)				%	63	00009			
25 to 24.9 (Overweight)	1	2%	27	13.5 %		1			
>30 (Obese)	1	2%	3	1.5%					
5. Prepregnancy BP of mother									
Normal Blood pressure	50	100%	199	99.5 %	0	1	NS	0	NA
Elevated Blood pressure	0	0	1	0.5%					
6. Weight gain during pregnancy									
< 10 kg	42	84%	80	40%					
10-12 kg	7	14%	80	40%	30.99	P<0.0	S	7.95	
>12 kg	1	2%	40	20%	39	00001			
7. At birth BP of mother									
Normal Blood pressure	37	74%	172	86%					
Elevated Blood pressure	13	26%	28	14%	4.201 2	0.040 396	S	0.46	(1.87-6.52)
8. Current Haemoglobin level of mother									
≥11 g/dl	14	28%	87	43.5 %					
10-10.9 g/dl	15	30%	72	36%	12.36	0.006	S	NA	NA
7-9.9 g/dl	19	38%	40	20%	74	225			
≤7 g/dl	2	4%	1	0.5%					
9. Current Sero status of mother									
HIV	0	0	0	0					
HBsAg	0	0	02	1.5%	0	0	NS	NA	NA
Triple marker test	0	0	0	0					

NEONATAL RELATED

Biophysiological Profile	Case Group		Control Group		Chi-Square Test	P-Value	Inference	OR	95% CI
10. Weight of the neonates									
2500-4000 gm	9	18%	114	57%	48.30	P<0.001	S	NA	NA
≤2500 gm	28	56%	82	41%					
≤1500 gm	10	20%	3	1.5%					
≤1000 gm	3	6%	1	0.5%					
≤750 gm	0	0	0	0					
11. Gender of neonate									
Female	20	40%	109	54.5 %	3.367	P= 0.06	NS	1.797	(0.95-3.37)
Male	30	60%	91	45.5 %					
12. Third trimester NST									
Reactive	26	52%	170	85%	25.72	P<0.001	S	5.23	(2.65-10.29)
Non- reactive	24	48%	30	15%					

This table shows that, (Chi-square test)

The chi-square value for height (20.979) was higher than the table values (3.84) found that there is a significant association between preterm delivery and height.

The chi-square value for Body Mass Index (15.3163) was higher than the table values (7.82) found there is a significant association between preterm delivery and BMI.

The chi-square value for weight gain during pregnancy (30.99) was higher than the table value (5.99) found there is a significant association between preterm birth and weight gain during pregnancy.

The chi-square value for at birth BP of mother (4.201) was higher than the table value (3.84) found that there is significant association between preterm delivery and BP of mother.

The chi-square value for hemoglobin level of mother (12.36) was higher than the table value (7.82) found that there is significant association between preterm delivery and hemoglobin level.

The chi-square value for third trimester NST (25.72) was higher than the table value (5.99) found that there is significant association between preterm delivery and third trimester NST.

Hence, stated hypothesis was accepted at 0.05 level of significance.

The table shows that calculated Chi-square values for Prepregnancy BP of mother, gender of neonates, and current Sero status of mothers were less than the table values found that there is no significant association between preterm birth and Biophysiological profile. Hence stated hypothesis was rejected at 0.05 level of significance.

This table shows that, (Odd ratio)

A mothers who belong to <150 cm height group (OR: 4.47, p=0.00001, 95% CI: 1.96-8.78) were having 4 times more chance to deliver preterm baby than those who belong to ≤150 cm.

A mothers who were having underweight and obese (OR:3.52, P=0.0001, CI:) were having 3 times more chance to give preterm birth than those who were healthy.

A mothers who gain weight < 10 kg during pregnancy (OR: 7.95) were having 7 times more chance to deliver preterm baby than those who gain weight more than 10 kg.

If third trimester NST more non-reactive (OR: 5.23, 95% CI:2.65 -10.29, P<0.01) were having 5 times more chances to deliver preterm baby.

SECTION: 4.6

PART: 4.6.1

ASSOCIATION AND COMPARISON BETWEEN CASE GROUP AND CONTROL GROUP WITH ANTENATAL CARE UTILIZATION

Maternal Antenatal care utilization	Case Group		Control Group		Chi-Square Test	P-Value	Inference	OR	95% CI
1. Number of Visited Health Facility									
1 to 2	20	40%	09	4.5%	19.7368	P=<0.001	S	4.20	(3.12-4.65)
3 to 4	10	24%	36	18%					
More than 4 times	18	36%	155	77.5 %					
2. Place where attended antenatal clinic									
Health Centre	35	70%	90	45%	**10.33**	P=0.016	S	NA	NA
Government Hospital	14	28%	98	49%					
Private Hospital	01	02%	11	5.5%					
Private Clinic	01	02%	01	0.5%					
3. Maternal Urine analysis									
Yes	31	62%	161	80.5 %	7.68	P=0.0	S	0.395	(0.202-0.772)

No	19	38%	39	19.5 %		06			
4. Tetanus toxoid vaccine									
Yes	45	90%	187	93.5 %	0.733	P=0.392	NS	0.626	(0.21-1.845)
No	05	10%	13	6.50 %					
5. Checked Blood measurements									
Yes	49	98%	195	97.5%	0.043	P=0.836	NS	1.256	(0.14-11.0)
No	01	02%	05	2.5%					
6. Iron and folic acid supplements									
Yes	44	88%	193	96.5%	20.57	P<0.001	S	0.25	(0.02-0.57)
• Regular	20	40%	146	73 %					
• Irregular	24	48%	47	23.5%					
No	06	12%	07	3.5%					
7. When did you start IFA tablet?									
None	06	12%	07	3.50%	7.987	P=0.018	S	NA	NA
First Trimester	30	60%	152	76%					
Second trimester	14	28%	41	20.5%					
Third trimester	00	00	00	00					
8. Danger signs or symptoms during pregnancy									
Yes	29	58%	59	29.5%	14.24	P<0.001	S	3.30	(1.74-6.25)
No	21	42%	141	70.5%					
9. History of previous abortion									
Yes	00	00	00	00	0	P=1	NS	NA	NA
No	100	100%	200	200%					

10. Antihelmintic treatment									
Yes	17	34%	163	81.5%	44.76	P=0.001	S	0.117	(0.059-0.2320
No	33	66%	37	18.5%					

This table shows that (Chi- Square test)

The Chi-Square values for Ante natal visit (19.7368) were higher than table value (3.84.) found that there is significant association between preterm deliveries and antenatal visit.

The Chi-square values for maternal urine analysis (7.68) were higher than table value (3.84) found that there is significant association between preterm deliveries and maternal urine analysis.

The Chi-square value for iron and folic acid tablet consumption (20.57) were higher than table value (3.84) found that there is significant association between preterm deliveries and IFA tablets.

The Chi-Square value for started time of IFA tablet consumption (7.987) was higher than table value (7.82) found that there is significant association between preterm deliveries and started time.

The Chi-square value for Danger signs and symptoms during pregnancy (14.24) were higher than table value (3.84) found that there is significant association between preterm deliveries and Danger signs and symptoms during pregnancy.

The Chi-square value for Anti-helmintic treatment (44.76) was higher than table value (3.84) found that there is significant association between preterm deliveries and anti-helmintic treatment.

The table shows that calculated Chi-square values for tetanus toxoid vaccine, check blood measurements, History of previous abortion were less than the table values found that there is no significant association between preterm birth and Biophysiological profile. Hence stated hypothesis was rejected at 0.05 level of significance.

This table shows that (Odd ratio test)

Mother who are not attending the OPD of antenatal clinic or only 1 to 2 times visit (OR: 4.20, P<0.001, 95% CI) were having 4 times more chances to deliver preterm deliveries than those who are taking regular visit.

Mothers who were having danger sign and symptoms during pregnancy (OR: 3.30, P<0.001, 95% CI: 1.74, 6.25) were having 3 times more chances to deliver preterm deliveries than those who were having no sign and symptoms.

SECTION: 4.6.2

ASSOCIATION AND COMPARISON BETWEEN CASE GROUP AND CONTROL GROUP WITH MATERNAL MEDICAL VARIABLES

Maternal Medical Variables	Case Group		Control Group		Chi-Square Test	P-Value	Inference	OR	95% CI
1. Presence of Maternal Medical Variables									
Yes	46	92%	115	65%	20.76	P=0.0	S	3.59	(2.657-

No	04	08%	85	35%	65	0001			6.784)
2. Diabetes Mellitus									
Yes	0	0	0	0	0	0	NS	NA	NA
No	50	100%	200	100 %					
3. Hypertension									
Yes	2	4%	1	0.5%	4.132 9	0.042 0	S	8.2	(6.12-9.05)
No	48	96%	199	99.5 %					
4. UTI									
Yes	2	4%	0	0	0	0	NS	NA	NA
No	48	96%	0	0					
5. Asthma or Bronchitis									
Yes	1	2%	6	3%	0.147	P=0.7 014	NS	0.664	---
No	49	98%	194	97%					
6. Thyroid disorder									
Yes	0	0	0	0	0	0	NS	NA	NA
No	0	0	0	0					
7. Cardiac disease									
Yes	0	0	0	0	0	0	NS	NA	NA
No	0	0	0	0					
8. Sexually transmitted disease									
Yes	0	0	0	0	0	0	NS.	NA	NA
No	0	0	0	0					
9. Presence of anemia									

No	14	26%	106	65%	10.016	P= 0.001552	S	2.92	-----
Mild anemia	07	16.33 %	61	22.71%					
Moderate anemia	24	56%	33	12.28%					
Severe anemia	05	11.66 %	00	0					
Very severe anemia	00	00%	00	0					
10. Presence of maternal infection									
Yes	05	10%	06	3%	4.6596	P=0.030881	S	3.666	----
No	45	90%	194	97%					
11. Malaria									
Yes	3	6%	3	1.5%	0	0	NS	0	NA
No	47	94%	0	0					
12. Dengue									
Yes	0	0	0	0	0	0	NS	0	NA
No	0	0	0	0					
13. history of COVID 19									
Yes	0	0	0	0	0	0	NS	0	NA
No	0	0	0	0					
14. Sickle cell disease									
Yes	05	10%	10	5%	1.773	0.183	NS	2.2	
No	45	90%	190	95%					
15. Typhoid fever									
Yes	01	2%	0	0	0	0	NS	NA	
No	49	98%	0	0					
16. if any other									

Yes	02	4%	05	2.5%	0.3307	0.565254	NS	2	
No	48	96%	195	97.5%					

This table shows that (Chi-Square test)

The Chi-square value for presence of maternal medical variables (20.766) was higher than table value (3.84) found that there is significant association between preterm deliveries and maternal medical variables.

The Chi-square value for Hypertension (4.1329) was higher than table value (3.84) found that there is significant association between preterm deliveries and hypertension.

The Chi-square value for presence of anemia (10.016) was higher than table value (3.84) found that there is significant association between preterm deliveries and presence of anemia.

The Chi-square value for presence of maternal infection (4.6596) was higher than table value (3.84) found that there is significant association between preterm deliveries and presence of maternal infection.

The table shows that calculated Chi-square values for diabetes mellitus, UTI, asthma, malaria, dengue, history of COVID-19, Sickle cell disease, typhoid fever that there are no significant association between preterm birth and Biophysiological profile. Hence stated hypothesis was rejected at 0.05 level of significance.

This table shows that (Odd ratio test)

Mother who are having maternal medical conditions (OR: 3.59, P<0.001, 95% CI: 2.657-6.784) were having 3 times more chances to deliver preterm deliveries than those who are not having medical conditions.

Mothers who are having hypertension (OR: 8.2, p=0.042, 95% CI:) were having 8 times more chances to deliver preterm deliveries than those who are not having hypertension.

Mothers who are having anemia (OR: 2.92, p=0.001, 95% CI:) were having 2 times more chances to deliver preterm deliveries than those who are not having anemia.

Mothers who are presence of maternal infection (OR: 3.666, p=0.03, 95% CI:) were having 3 times more chances to deliver preterm deliveries than those who are not having maternal infection .

SECTION: 4.6.3

ASSOCIATION AND COMPARISON BETWEEN CASE GROUP AND CONTROL GROUP BY MATERNAL OBSTETRICAL VARIABLES

Maternal Obstetrical Variables	Case Group		Control Group		Chi-Square Test	P-Value	Inference	OR	95% CI
1. Types of Presentation									
Cephalic	49	98%	197	98.5%	0.0635	0.801022	NS	0.74	
Breech	01	02%	03	1.5%					

Other (specify)	00	00	00	00					
2. Presence of Obstetrical Complications									
Yes	38	80%	93	45%	13.9562	0.000187	S	3.67	----
No	12	20%	107	53.5%					
Ante Partum Hemorrahge									
Yes	02	04%	0	0	0	0	NS	NA	NA
No	48	96%	0	0					
Polyhydramnions									
Yes	00	00	02	01%	0	0	NS	NA	NA
No	50	100%	198	199%					
Oligohydramnions									
Yes	09	12%	14	3.5%	5.7939	0.0160	S	3	-----
no	41	88%	186	96.5%					
Obstructed Labour									
Yes	0	0	6	10%	0	0	NS	NA	NA
No	0	0	194	90%					
PIH									
Yes	07	14%	30	05%	0.0317	0.858	NS	0.909	
No	43	86%	170	95%					
Pre- eclampsia									
Yes	02	04%	0	0	0	0	NS	NA	NA
No	48	96%	0	0					
Uterine anomalies									

Yes	0	0	2	1%	0	0	NS	NA	NA
No	50	100%	198	99%					
Pre mature Rupture of membrane									
Yes	18	36%	22	11	18.6012	0.00016	S	4.68	----
No	32	68%	178	89%					
CPD									
Yes	0	0	14	10%	0	0	NS	NA	NA
No	50	100%	186	0					
Fetal distress									
Yes	02	20%	09	10%	0.0238	0.8774	NS	1	----
No	48	80%	191	90%					
Hyperemesis gravidrum									
Yes	0	0	0	0	0	0	NS	0	NA
No	50	100%	200	100 %					
3. Types of Delivery									
Spontaneous vaginal Delivery	36	72%	149	74.5 %	0.4244	0.8087	NS	NA	NA
Assisted Vaginal Delivery	00	00	00	00					
Induced vaginal delivery	00	00	00	00					
Elective cesarean section	00	00	01	0.5%					
Emergency cesarean section	14	28%	50	25%					
4.placental Location									
Anterior	18	36%	111	55.5	6.09	P=0.0	S	2.217	(1.16-

				%		14			4.21)
Posterior	32	64%	89	44.5 %					

This table shows that (Chi-Square test)

The Chi-square value for presence of obstetrical complications (13.9562) was higher than table value (3.84) found that there is significant association between preterm deliveries and maternal obstetrical complications.

The Chi-square value for presence of oligohydramnions (5.793) was higher than table value (3.84) found that there is significant association between preterm deliveries and oligohydramnions.

The Chi-square value for presence of PROM (18.6012) was higher than table value (3.84) found that there is significant association between preterm deliveries and PROM.

The Chi-square value placenta location (6.09) was higher than table value (3.84) found that there is significant association between preterm deliveries and placenta location.

The table shows that calculated Chi-square values for Ante partum Hemorrahge, Polyhydramnions, Obstructed labour, Pre-eclampsia, CPD, Fetal Distress that there are no significant association between preterm birth and maternal obstetrical variables Hence stated hypothesis was rejected at 0.05 level of significance.

This table shows that (Odd ratio test)

Mother who are having Obstetrical complications (OR: 3.67, P=0.00018, 95% CI:) were having 3 times more chances to deliver preterm deliveries than those who are not obstetrical complications.

Mother who are having oligohydramnions (OR: 3, P=0.016, 95% CI) were having 3 times more chances to deliver preterm deliveries than those who are not having oligohydramnions.

Mother who are having PROM (OR: 4.68, P=0.00016, 95% CI) were having 4 times more chances to deliver preterm deliveries than those who are not having oligohydramnions.

Mother who are having posterior placenta location (OR: 2.217, p=0.014, 95% CI: 1.16-4.21) were having 2 times more chances to deliver preterm deliveries than those who are having anterior placenta location.

SECTION: 4.6.4

ASSOCIATION AND COMPARISON BETWEEN CASE GROUP AND CONTROL GROUP BY LIFESTYLE, BEHVAIOUR AND IPV RELATED VARIABLES

Life style, Behavioural and IPV related variables	Case Group		Control Group		Chi-Square Test	P-Value	Inference	OR	95% CI
1. Any stressful event occur during pregnancy									
Yes	22	44%	41	20.5 %	11.72	P=0.001	S	3.047	(1.58-5.86)

No	28	56%	159	79.5 %					
2. Any bad habits during pregnancy									
Yes	5	10	5	2.5	5.859	P=0.015	S	4.33	(1.20-15.61)
No	45	90	195	97.5					
3. suffer from Physiological Violence									
Yes	0	0	0	0	0	P=1	NS	NA	NA
No	50	100%	200	100 %					
4. suffer from Psychological Violence									
Yes	5	10%	2	1%	11.91	P=0.001	S	11	(2.06-58.52)
No	45	90%	198	99					
5. Total Hours of rest during pregnancy in a day									
<2 hours	37	74%	39	19.5 %	56.219	P=0.001	S	NA	NA
2 to 4 hours	10	20%	131	65.5 %					
>4 Hour	3	6%	30	15%					
6. Number of meals per day									
<2 times	39	78%	91	45.5 %	16.927	P=0.001	S	NA	NA
2 to 4 time	09	18%	89	44.5 %					
>4 hours	02	4%	20	20%					

This table shows that (Chi-Square test)

The Chi-square value for any stressful event occurs during pregnancy (11.72) was higher than table value (3.84) found that there is significant association between preterm deliveries and stressful event occur during pregnancy.

The Chi-square value for bad habits (5.859) was higher than table value (3.84) found that there is significant association between preterm deliveries and bad habits.

The Chi-square value for presence of psychological violence (11.91) was higher than table value (3.84) found that there is significant association between preterm deliveries and psychological violence.
The table shows that calculated Chi-square values for physiological violence, rest during a day, and meals per day, there are no significant association between preterm birth and lifestyle, behavioural and IPV related maternal variables Hence stated hypothesis was rejected at 0.05 level of significance.

This table shows that (Odd ratio test)
Mother who are having stressful event during pregnancy (OR: 3.047, P=0.001, 95% CI: 1.58-5.86) were having 3 times more chances to deliver preterm deliveries than those who are not having stressful event during pregnancy.
Mother who are having bad habits (OR: 4.33, P=0.015, 95% CI: 1.20-15.61) were having 44 times more chances to deliver preterm deliveries than those who are not having bad habits.
Mother who are having psychological violence (OR: 11, P=0.001, 95% CI: 2.06-58.52) were having 11 times more chances to deliver preterm deliveries than those who are not having psychological violence.

SR NO	VARIABLES	ODD RATIO	P VALUE	95% CI
1	Family History of preterm birth	4.47	P<0.0001	0.09-0.37
2	Place of residence	5.63	P<0.001	2.14-14.82
3	Height	4.47	P<0.000001	1.96-8.78
4	Body Mass Index	3.52	P=0.000009	---
5	Weight gain during pregnancy	7.95	P<0 .00001	---
6	Third trimester NST	5.23	P<0.01	2.65-10.29
7	Number of visited health facility	4.20	P<0.001	
8	Danger sign during pregnancy	3.30	P<0.001	1.74-6.25
9	Presence of maternal medical variables	3.59	P=0.000001	2.657-6.784
10	Hypertension	8.2	P=0.042	----
11	Presence of obstetrical complication	3.67	P=0.000187	----
12	Oligohydramnions	3	P=0.016	-----
13.	PROM	4.68	P=0.00016	----
14.	Placental location	2.217	P=0.014	1.16-4.21
15.	Any stressful event during pregnancy	3.047	P=0.001	1.58-5.86
16.	Bad habits	4.33	P=0.015	1.20-15.61
17.	Psychological violence	11	P=0.001	2.06-58.52

In Bivariate analysis, the risk factors for premature delivery considered statistically significant were family history of preterm birth, place of residence, height, body mass index, weight gain during pregnancy, third trimester NST, Number of visited health facility, Danger sign during pregnancy, Presence of maternal medical variables, Hypertension, Presence of obstetrical complication, oligohydramnions, PROM, Placental location, Any stressful event during pregnancy, Bad habits and Psychological violence.

Other independent variables with no statistically significant association with preterm delivery.

SECTION: 07

LOGISTIC REGRESSION OF RISK FACTORS RELATED TO PRETERM DELIVERY

SR NO	VARIABLES	ODD RATIO	P VALUE	95% CI
1	Family History of preterm birth	2.1	0.001	0.897-6.610
2	Place of residence	0.241	0.021	0.072-0.808
3	Height	1.672	0.002	0.127-21.990
4	Body Mass Index	0.660	0.129	0.001-1171.307
5	Weight gain during pregnancy	13.070	0.024	1.413-120.851
6	Third trimester NST	0.441	0.074	0.042-1.414
7	Number of visited health facility	8.411	0.001	2.485-28.469
8	Danger sign during pregnancy	2.01	0.001	0.080-2.375
9	Presence of maternal medical variables	8.31	0.169	0.41-170.33
10	Hypertension	2.41	P<0.0001	0.045-8.348
11	Presence of obstetrical complication	1.675	0.684	0.140-20.022
12	Oligohydramnions	0.004	1.652	0.544-3.817
13.	PROM	0.012	2.319	0.012-1.280
14.	Placental location	0.603	0.188	0.284-1.270
15.	Any stressful event during pregnancy	0.634	0.251	0.291-1.381
16.	Bad habits	0.329	0.159	0.70-1.548
17.	Psychological violence	0.235	0.124	0.037-1.487

CONCLUSION:

The results of logistic regression (multivariate analysis). A family history of PTD (OR:2.1, P value: 0.001, CI: 0.897-6.610), Height (OR: 1.672, P Value: 0.002, CI: 0.127-21.990), weight gain during pregnancy (OR: 13.070, p value: 0.024, CI: 1.413-120.851), , number of health visited during pregnancy (OR:8.411, p value: 0.001, CI:2.485-28.469), danger sign during pregnancy (OR: 2.01, p value: 0.001,

CI:0.080-2.375), hypertension (OR:2.41, p value<0.0001, CI: 0.045-8.348), oligohydramnions (OR: 1.652, p value: 0.004, CI: 0.544-5.817)and PROM (OR: 2.319, p value=0.012, CI:0.012-1.280) were all significant associated with PTD.

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